

### AMENDMENT TO THE CLAIMS

1. (Currently Amended) A payment processing gateway server for processing financial transactions, comprising:

a public network interface ~~configured to coupled~~ to a public network such that the payment processing gateway server receives and receive first first financial transaction authorization requests, the first financial transaction authorization requests being received from a merchants by way of the public network and the public network interface, wherein the first financial transaction authorization request and includes transaction specific data, merchant and or store related data which is related to a merchant generating the authorization request and a supplemental header, wherein the supplemental header includes a contract identification field in which there is stored an identification of identifies a contract with between the merchant and a payment provider;

a gateway memory that includes a listing of valid contract identifications; ~~wherein the gateway memory includes and~~ a cache of merchant ~~or store/location~~ invariant data, ~~and wherein the first financial transaction authorization requests also includes a cache-key which that identifies a sub-set of all data in the cache, wherein the cache key comprises a 128-bit data field, and wherein the first financial authorization requests also includes a cacheable data field containing data that is added to and wherein the gateway processor populates the said cache of merchant invariant data; contained in the memory with data received in the cacheable data field;~~

a gateway processor ~~that configured to processes~~ the first financial transaction authorization requests ~~received through the public network interface based upon a comparison of by comparing data in the said contract identified in the contract identification field identification field~~ to the listing of valid contract identifications, and wherein the gateway processor is further configured to reject the first financial transaction authorization requests based upon ~~based on~~ a determination that the contract identified in the contract identification field data in

~~the contract identification field does not match any a valid contract identification in the listing of valid contract identifications;~~

~~a financial network interface configured to coupled to at least one a financial network such that the payment processing gateway server and transmits, over the financial network interface and over the financial network, a second financial transaction authorization requests to a financial institution coupled to the at least one financial network, the second financial transaction authorization request being generated by the gateway processor so as to correspond to and be indicative of information contained in the first financial transaction authorization request based upon the first financial transaction authorization requests, and wherein the payment processing gateway server receives from the financial institution, by way of the financial network interface and the financial network, financial network interface further configured to receive a response to the second financial transaction authorization request in the form of a first financial transaction authorization results from the financial institution;~~

~~wherein the gateway processor the public network interface further configured to sends a second financial transaction authorization results to the merchants as a response to the first financial transaction authorization request received from the merchant, in response to the first financial transaction authorization results the second financial transaction authorization result corresponding to and being indicative of information contained in the first financial transaction authorization result; and~~

~~wherein the payment processing gateway server is implemented in across a plurality of servers, a portion of the plurality of servers being web servers organized in a web cluster, and at least one of the plurality of servers being a shared server, and wherein the web servers accessing state information from the shared server, the shared server maintaining each consistency of the cache of merchant invariant data and monitoring replication across the web servers.~~

2. (Currently Amended) The apparatus of claim 1 wherein configured to reject comprises the gateway processor configured to send a transaction response to the merchant by way of the public network interface and the public network, and wherein the transaction response ~~that includes a~~ transaction header field and a response data field, wherein the transaction header field identifies a particular transaction, ~~and wherein the web servers and the shared server exchange data utilizing~~ objects.

3. (Currently Amended) The apparatus of claim 1 wherein when the gateway processor rejects the first financial transaction authorization request based upon said determination that the contract identified in the contract identification field does not match any valid contract identification in the listing of valid contract identifications, it does so by sending the gateway ~~server sends a NACK-negative acknowledgement message to a~~ the merchant by way of the public network interface and the public network ~~through the public network interface if the data in the contract identification field does not match the valid contract identifications contained in memory.~~

4. (Currently Amended) The apparatus of claim 1 wherein the gateway ~~server-processor sends an~~ acknowledge message to the merchant by way of the public network interface and the public network upon a determination that the contract identified in the contract identification field does match a valid contract identification in the listing of valid contract identifications ~~sends an ACK message to a merchant through the public network interface if the data in the contract identification field matches a valid contract identification contained in memory.~~

5. (Previously Presented) The apparatus of claim 2 wherein the contract identification field comprises two bytes of 8 data bits each.

6. (Currently Amended) The apparatus of claim 5 wherein the gateway memory includes a record of log data indicative of related to data carried in the contract identification field of supplemental headers received from a plurality of the first financial transaction authorization requests, wherein

the gateway memory also includes in the record of log data an indication of data carried in a contract identification.

7-9. (Cancelled)

10. (Currently Amended) The apparatus of claim 6 wherein the gateway processor maintains an open socket connection with ~~a~~the financial institution throughout the financial network interface ~~during processing of a financial transaction authorization request.~~

11. (Previously Presented) The apparatus of claim 6 wherein the supplemental header includes a payment type field.

12. (Currently Amended) The apparatus of claim 11 wherein the payment processing gateway server receives the first financial transaction authorization request from the merchant based on communication made in ~~the first financial transaction authorization requests are in accordance~~ with an HTTPS standard.

13. (Currently Amended) The apparatus of claim 11 wherein the payment processing gateway server receives the first financial transaction authorization request from the merchant based on communication made in ~~the first financial transaction authorization requests are in accordance~~ with an XML standard.

14. (Currently Amended) The apparatus of claim 11 wherein the payment processing gateway server receives the first financial transaction authorization request from the merchant based on communication made ~~the first financial transaction authorization requests are transmitted through~~ a secure socket layer.

15. (Currently Amended) The apparatus of claim ~~6~~44 wherein the gateway processor sends an acknowledge message to the merchant by way of the public network interface and the public

network upon a determination that the contract identified in the contract identification field does match a valid contract identification in the listing of valid contract identifications, the an acknowledgement message being sent to the merchant before the second financial transaction authorization result is sent to the merchant through the public network interface by the gateway server to a merchant does not precede a transmission of an authorization result.

16. (Cancelled)

17. (Currently Amended) A payment processing gateway server for processing financial transactions, comprising:

- a public network interface ~~configured to coupled~~ to a public network such that the payment processing gateway server receives and receive a first financial transaction authorization requests, the first financial transaction authorization requests being received from a first merchants by way of the public network and the public network interface, wherein the first financial transaction authorization request and includes transaction specific data, merchant and/or related data which is related to a merchant generating the authorization request, a supplemental header, and a cache-key field;
- a gateway memory that includes a cache of merchant ~~or store/location-invariant data, wherein the merchant or store/location-invariant data includes, for a plurality of different merchants, a merchant name, and a merchant~~ a location, ~~a merchant category code, and an acquirer bin;~~
- a gateway processor ~~that configured to selects retrieve a sub-set of the merchant or store/location-invariant data, the sub-set being for the first merchant and the selection of the sub-set being -based upon data stored in the cache-key field and configured to process first financial transaction authorization requests received through the public network interface based upon the supplemental header;~~
- a financial network interface ~~configured to coupled~~ to at least one a financial network such that the payment processing gateway server and-transmits, over the financial

network interface and over the financial network, a second financial transaction authorization requests to a financial institution coupled to the at least one financial network, the second financial transaction authorization request being generated by the gateway processor so as to correspond to and be indicative of information contained in the first financial transaction authorization request—based upon first financial transaction authorization requests, and wherein the payment processing gateway receives from the financial institution, by way of the financial network interface and the financial network, a response to the second financial transaction authorization request in the form of a —interface further configured to receive first financial transaction authorization results from the financial institution;

wherein the gateway processor the public network interface further configured to sends a second financial transaction authorization results to the merchants as a response to the first financial transaction authorization request received from the merchant, in response to the first financial transaction authorization results the second financial transaction authorization result corresponding to and being indicative of information contained in the first financial transaction authorization result;

wherein the supplemental header includes a payment type identification field that includes data that which identifies a—the financial network coupled to the financial network interface,—for processing the first financial transaction authorization request;

wherein the payment processing gateway server is implemented in a plurality of web servers; and

—— a web server front end that directs multiple web requests from one particular Internet Protocol address to the same web server.

18. (Currently Amended) The apparatus of claim 17 wherein the payment type identification field identifies a transaction type and a protocol format of the transaction specific data,—payment network and/or protocol and wherein the web server front end directs multiple web requests from one particular Internet Protocol address to the same web server for a set period of time.

19. (Cancelled)

20. (Currently Amended) The apparatus of claim 18 further comprising:

a back end server process that maintains an open payment socket to the ~~at least one~~  
financial network, ~~and~~

~~wherein the payment type identification field describes a protocol format of the  
transaction specific data.~~

21. (Previously Presented) The apparatus of claim 20 wherein the supplemental header further includes a contract identification field which identifies a contract with a payment provider.

22. (Cancelled)

23. (Currently Amended) The apparatus of claim 21 wherein the financial transaction authorization requests includes a cacheable data field and wherein the gateway processor at least partially populates the cache of merchant invariant data ~~contained in the memory~~ with data received in the cacheable data field.

24. (Currently Amended) The apparatus of claim 23 ~~wherein the cache key comprises a 128 bit data field~~ wherein the payment processing gateway server is implemented across a plurality of web servers, and wherein the apparatus further comprises a web server front end process that utilizes the gateway processor to enforce a rule that requires web requests from one particular Internet Protocol address to one particular web server in said plurality.

25. (Cancelled)

26. (Currently Amended) The apparatus of claim 24 wherein the open payment socket is a secure socket layer ~~comprises an SSL connection.~~

27. (Cancelled)

28. (Currently Amended) The apparatus of claim 24 wherein the first financial transaction authorization requests ~~are~~ is formatted in accordance with an HTTPS standard ~~and wherein the web server front end is implemented as software.~~

29. (Currently Amended) The apparatus of claim 24 wherein the first financial transaction authorization requests ~~are~~ is formatted in accordance with an XML standard ~~and wherein the web server front end is implemented as hardware.~~

30. (Currently Amended) The apparatus of claim 24 wherein the first financial transaction authorization requests ~~are~~ is transmitted through a secure socket layer.

31. (Currently Amended) The apparatus of claim 24 wherein an acknowledgment message is transmitted ~~ACK transmission~~ through the public network interface by the gateway server to a the merchant, said transmission of the acknowledgment message corresponding to but not preceding does not precede an transmission of said ~~said~~ sending by the gateway processor of the second financial transaction authorization result to the merchant ~~an authorization result.~~

32. (Cancelled)

33. (Previously Presented) A payment processing gateway server for processing financial transactions, comprising:

a public network interface ~~configured to coupled~~ to a public network such that the payment processing gateway receives and receives a first financial transaction authorization requests, the first financial transaction authorization requests being received from a merchants by way of the public network and the public network interface, wherein the first financial transaction authorization request and which



includes transaction specific data, cache-able data and a cache key, wherein the cache key comprises data indicative of a the merchant and data indicative of a store, wherein the data indicative of a merchant comprises 12 bytes and the data indicative of a store comprises 4 bytes;

- a gateway memory ~~comprising volatile memory, the gateway memory configured to that~~ caches the cache-able data from the first financial authorization requests and in a location within the gateway memory as designated by the cache key; index the cache in accordance with the cache key, the gateway memory further configured to restore the cache-able data upon a failure by utilizing a database;
- a gateway processor ~~configured to that~~ references the cache key as part of a retrieval of retrieve the cache-able data from the gateway memory based upon the cache key and configured to process the first financial transaction authorization requests received through the public network interface based upon a supplemental header;
- a financial network interface ~~configured to coupled to a plurality of financial networks such that the payment processing gateway server and transmits, over the financial network interface and over the financial network, a second financial transaction authorization requests to a particular one of the plurality of financial institutions as designated directly or indirectly in the first financial transaction authorization request, wherein the second financial transaction authorization request is generated by the gateway processor so as to correspond to and be indicative of information contained in the first financial transaction authorization request coupled to the plurality of financial networks based upon first financial transaction authorization requests, the financial network interface further configured to receive first financial transaction authorization results from the financial institutions, and wherein the payment processing gateway receives from the particular financial institution, by way of the financial network interface and the financial network, a response to the second financial transaction authorization request in the form of a first financial transaction authorization result; and~~

wherein the gateway processor sends a second financial transaction authorization result to the merchant as a response to the first financial transaction authorization request received from the merchant, the second financial transaction authorization result also being indicative of information contained in the first financial transaction authorization result, the public network interface further configured to send second financial transaction authorization results to merchants in response to the first financial transaction authorization results.

34. (Currently Amended) The apparatus of claim 33 wherein sending the cache key comprises 128 bits of data~~second financial transaction authorization result comprises sending a partial or complete copy of the first financial transaction authorization result.~~

35. (Currently Amended) The apparatus of claim ~~33~~<sup>34</sup> wherein the cache key comprises a GUID (Globally Unique Identifier).

36. (Cancelled)

37. (Currently Amended) The apparatus of claim 35 wherein the cache-able data includes data selected from the group of data consisting of merchant ~~name~~, country, merchant state, ~~location~~, ~~zip code~~, merchant category and time zone information.

38. (Currently Amended) The apparatus of claim 37 wherein the gateway processor sends the second financial transaction authorization result to the merchant by way of a web service provided to the merchant by the gateway processor~~the gateway processor provides a web service on the public network interface~~ payment processing gateway server.

39. (Currently Amended) The apparatus of claim 38 wherein the web service maintains state in relation to the first financial transaction authorization requests~~and wherein the web service is provided by ASP.NET.~~

40. (Previously Presented) The apparatus of claim 37 wherein the gateway processor sends the second financial transaction authorization result to the merchant by executing commands involving functionality carried out within the gateway processor operates in accordance with a common language run time environment.

41. (Currently Amended) The apparatus of claim 37 wherein transmitting the second financial transaction authorization request comprises sending a partial or complete copy of the first financial transaction authorization request~~the database is a SQL server and wherein the database duplicates data maintained in the cache to provide a data backup.~~

42. (Currently Amended) The apparatus of claim ~~39-40~~ wherein the said executing commands comprises commands executed by a common language runtime engine~~database is configured to maintain the state.~~

43. (Currently Amended) The apparatus of claim ~~39~~33 wherein the gateway processor is one of a plurality of gateway processors that are part of the payment processing gateway server, the plurality of gateway processors being ~~including a plurality of gateway processors~~ configured so as to form a web cluster.

44. (Currently Amended) The apparatus of claim 43 further comprising including a director that ~~configured to directs~~ the first financial transaction authorization requests from the merchant to a specific one of the plurality of merchant to a specific gateway processors, the specific one being the one that generates the second financial transaction authorization request.

45. (Cancelled)

46. (Currently Amended) The apparatus of claim ~~37~~3 wherein following a reset of the database, the gateway processor transmits a transmission request message to the merchants through the

public network interface, the transmission request requesting ~~which requests a transmission of the cache-able data for populating the cache contained in the volatile memory and for re-populating the database.~~

47. (Currently Amended) The apparatus of claim 37 wherein the first financial transaction authorization request includes a supplemental header ~~containing—that includes a contract identification field~~ containing data that indicates a contract with the particular one of the plurality of financial institutions.

48. (Currently Amended) The apparatus of claim 47 wherein the ~~financial transaction authorization request includes a~~ supplemental header also includes ~~containing a~~ payment type identification field.

49. (Currently Amended) The apparatus of claim 48 wherein the first financial transaction authorization requests ~~are~~ is formatted in accordance with an HTTPS standard.

50. (Currently Amended) The apparatus of claim 48 wherein the first financial transaction authorization requests ~~are~~ is formatted in accordance with an XML standard.

51. (Currently Amended) The apparatus of claim 48 wherein the first authorization requests ~~are~~ is transmitted through a secure socket layer.

52. (Currently Amended) The apparatus of claim 48 wherein the gateway processor processes the first financial transaction authorization requests using a stateless logic implementation, and wherein the gateway processor ~~further~~ synchronizes socket sessions with the plurality of financial institutions through the financial network interface.

53-57. (Cancelled)

58. (Currently Amended) A payment processing gateway server for processing debit type financial transactions, comprising:

- a public network interface ~~configured to coupled~~ to a public network such that the payment processing gateway server and receives a first financial transaction authorization requests, the first financial transaction authorization requests being received from a merchants by way of the public network and the public network interface, wherein the first financial transaction authorization request and includes transaction specific data; and merchant and/or store related data directly or indirectly indicating the merchant; which is related to a merchant generating the authorization requests;
- a gateway processor ~~that configured to processes~~ the first financial transaction authorization requests ~~received through the public network interface, such that the processing wherein operation of the gateway processor on~~ of the first financial transaction authorization requests is stateless, and wherein wherein the gateway processor implements a socket based protocol, and wherein the gateway processor utilizes utilizing a server thread to maintain a socket sessions with the merchant and with a financial institution;
- a financial network interface ~~configured to coupled~~ to ~~a at least one financial network~~ such that the payment processing gateway server and transmits a second financial transaction authorization requests to the financial institution which is coupled to coupled to the at least one financial network, the second financial authorization request being generated by the gateway processor so as to correspond to or be a copy of information contained in the first financial transaction authorization request, and wherein the payment processing gateway receives from the financial institution, by way of the financial network interface and the financial network, a response to the second financial transaction authorization request in the form of a based upon the first financial transaction authorization requests, the financial network interface further configured to receive first financial transaction authorization results from the financial institution;

wherein the gateway processor sends a second financial transaction authorization result to the merchant as a response to the first financial transaction authorization request received from the merchant, the second financial transaction authorization result corresponding to or being a copy of information contained in the first financial transaction authorization result;

~~the public network interface further configured to send second financial transaction authorization results to merchants in response to the first financial transaction authorization results; and~~

wherein the gateway processor ~~the financial network interface further configured to send~~ an acknowledgement to the financial institution ~~independently of receipt of an acknowledgement from the merchant in response to the second financial authorization results~~ the acknowledgment being separate and distinct from the second financial transaction authorization request.

59. (Currently Amended) The apparatus of claim 58 wherein the gateway processor ~~is configured to recognize~~ that the first a duplicate financial transaction authorization request is a duplicate financial transaction authorization request sent from the merchant within a predetermined time limit, and wherein the gateway processor transmits a duplicate notification message to the merchant in response to the recognition of the duplicateduplicate message financial transaction authorization request.

60-75. (Cancelled)